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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Graeme I. Bell, Terry Reisine, and
Kazuki Yasuda

Serial No.: 08/455,683

Filed: May 31,1995

For: METHODS OF IDENTIFYING AGONISTS AND ANTAGONISTS OF OPIOID RECEPTORS (AS AMENDED)

Group Art Unit: 1647

Examiner: Landsman, Robert S.

Atty. Dkt. No.: ARCD:177/10007970

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BRIEF ON APPEAL

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APPEAL BRIEF

BOX AF
Commissioner of Patents
Washington, D.C. 20231

Commissioner:

Appellants hereby submit an original and two copies of this Appeal Brief to the Board of Patent Appeals and Interferences in response to the final Office Action dated August 19, 2002. The Notice of Appeal was received by the Patent and Trademark Office on November 25, 2002, as evidenced by the stamped postcard. A fee for a two-month extension of time is included herewith ($205). Thus, this brief is timely filed. The fee for filing this Appeal Brief is ($160), and is attached hereto, check totaling ($365). Should any other fees be due, or the attached fee be deficient or absent, the Commissioner is authorized to withdraw the appropriate fee from Fulbright & Jaworski L.L.P. Deposit Account No. 50-1212/10007970/ARCD:177. Please date stamp and return the enclosed postcard to evidence receipt of this document.

I. REAL PARTY IN INTEREST

The real parties in interest are the assignee, Arch Development Corporation, Chicago, IL, (University of Chicago) and the licensee, Adolor Corporation, Exton, Pennsylvania.

II. RELATED APPEALS AND INTERFERENCES

There are no interferences or appeals for related cases.

III. STATUS OF THE CLAIMS

Claims 1-74 were filed with the original application, Serial No. 08/292,694, on August 19, 1994. This application is a divisional of the original application.

In a Preliminary Amendment filed with this application, claims 1-46 were canceled and claims 75-80 were added. In a Response under 37 C.F.R. § 1.116 to the Restriction Requirement of April 25, 1997, Appellants elected to prosecute claims 43-73 and 75-80, *i.e.*, the Group I claims, and claims 53-58, 60-62, and 68-80 were withdrawn from consideration as non-elected species. In a Response under 37 C.F.R. § 1.116 to the Office Action dated October 27, 1997, claims 47, 49-51, 59, and 64-65 were amended, and claims 81-90 were added. In a Response under 37 C.F.R. § 1.116 to the Office Action dated June 29, 1998, claims 47, 49, 59, and 84 were amended, and claims 91-114 were added. In a Response under 37 C.F.R. § 1.116 to the Office Action dated August 13, 1999, claims 47, 49, 59, 63, 66, 84-114 were amended.

In a Response under 37 C.F.R. § 1.116 to the Office Action dated August 10, 2000, claims 47-52, 59, 63, 65-67, and 81-90 were cancelled, claim 103 was amended, and claims 115-136 were added. In a Response under 37 C.F.R. § 1.116 to the Office Action dated January 30, 2001, claims 64, 110, and 111 were cancelled, and claims 91, 97-102, 109, 112-115, 121, 124,

and 129 were amended. In a Second Submission under 37 C.F.R. § 1.129 to the Office Action dated January 30, 2001, claims 64, 110-111, 115, 124, 133, and 136 were cancelled, and claims 91, 97, 103, 109, 112, 116-118, 121, 123, and 125-129, and claims 137-143 were added.

In a Supplemental Amendment to the Office Action dated January 30, 2001, claims 103, 109,117, 129, and 137 were amended. In a Response under 37 C.F.R. § 1.116 to the Office Action dated March 12, 2002, claims 103, 109, 117, 129, and 137-140 were amended. In an Amendment under 37 C.F.R. § 1.116 filed concurrently with this appeal brief, claims 91-96, 103-108, 116-122, 125-132, 134, and 135 were cancelled. The aforementioned Amendment is discussed below. Thus, claims 97-102, 109, 112-114, 123, and 137-143 are pending and appealed. A copy of the appealed claims, with the present Amendments indicated, is attached as EXHIBIT A to this brief.

IV. STATUS OF AMENDMENTS

Appellants filed an Amendment on June 12, 2002, which the Final Office Action indicates has been entered. Appellants note that the Amendment filed on April 30, 2001 was not entered because Appellants were informed in the Advisory Action dated June 4, 2001 that the Amendment would be entered upon filing an Appeal Brief. Because no Appeal Brief was filed at that time, the Amendment was not entered. EXHIBIT B. Appellants are also filing an Amendment concurrently with this appeal brief to address a minor issue of co-pending claims. EXHIBIT C. In the Office Action dated August 19, 2002, claims 91-96, 103-108, 116-122, 125-132, 134, and 135 were found to be allowable in the application. These claims were filed in a continuation application that was filed on October 21, 2002, and consequently, are now being cancelled from this application.

V. SUMMARY OF THE INVENTION

The present invention is drawn to methods of screening a substance for its ability to specifically bind to an opioid receptor by contacting the substance with an opioid receptor polypeptide encoded by a nucleic acid sequence that has all or part of the contiguous bases of SEQ ID NO:11. Specification at page 18, lines 1-17.[1] The opioid receptor polypeptide may be a kappa opioid receptor polypeptide having SEQ ID NO:12. Specification at page 31, lines 1-2. Other methods are directed to methods of isolating a substance with an ability to act as a specific agonist of a kappa opioid receptor by contacting a composition with the substance with an opioid receptor polypeptide having the amino acid sequence of residues 111 through 136 of SEQ ID NO:12 and encoded for by a part of all of the contiguous bases of SEQ ID NO:11, detecting the substance's ability to bind to the opioid receptor polypeptide, and isolating the substance. Specification at page 13, lines 17-30. Yet other methods are directed to methods of screening a substance for its ability to act as a specific agonist of a kappa opioid receptor by expressing a chimeric recombinant opioid receptor polypeptide having the second extracellular loop having the amino acid sequence of residues 111 through 136 of SEQ ID NO:12, wherein the chimeric opioid receptor polypeptide is encoded by a nucleic acid sequence having part or all of the contiguous bases of SEQ ID NO:11. Specification at page 18, lines 5-17. The portion of the chimeric opioid receptor polypeptide may have SEQ ID NO:14. Specification at page 31, lines 5-6. The chimeric opioid receptor polypeptide has polypeptide portions of both kappa and delta opioid receptors. Specification at page 89, lines 31-35, through page 90, lines 1-19.

[1] Appellants note that citations to the Specification identify support for the claimed invention, however, such citations in no way constitute the only support, as other support in the Specification can be found and relied upon, if necessary.

VI. ISSUES ON APPEAL

Are claims 97-102, 109, 112-114, 123 and 137-143 properly rejected for lack of written description under 35 U.S.C. §112, first paragraph?

VII. GROUPING OF THE CLAIMS

The claims stand or fall together.

VIII. SUMMARY OF THE ARGUMENT

The Examiner has rejected the above cited claims under the written description requirement of 35 U.S.C. §112, first paragraph, based on an assertion that Appellants were not in possession of the entire sequence of a human opioid receptor at the time of filing. The claims at issue are drawn to processes for screening and processes for isolating substances for their ability to interact with an opioid receptor by contacting the substance with a polypeptides encoded by a specific polynucleotide sequence. The polynucleotide sequence at issue (*i.e.*, SEQ ID NO:11), which is fully disclosed in the specification, encodes a partial length human opioid receptor. The Examiner contends that in order for Appellants to be in possession of the claimed invention, Appellants must have disclosed a polynucleotide sequence encoding a full-length human opioid receptor at the time of filing. The Examiner argues that in order for the claims to encompass various constructs such as chimeras, Appellants would either need to use "consisting of" language or recite that the nucleic acids of the claimed processes would only be able to "comprise" up to the full length of SEQ ID NO:11.

Appellants contend that the Examiner's rejection is based upon a flawed analysis of written description law and a flawed interpretation of Appellants' claims. In particular,

Appellants contend that the Examiner has failed to conduct a proper analysis of Appellants' claims. As a result, Appellants contend that the Examiner has failed to meet the required initial burden of presenting evidence or reasons why a person skilled in the art would not recognize in Appellants' disclosure a description of the invention defined by the claims. Appellants contend that their specification fully supports their claims, and that no written description rejection would have been raised had the Examiner conducted a proper written description analysis.

IX. ARGUMENT

As an initial matter, Appellants note that findings of fact and conclusions of law by the U.S. Patent and Trademark Office must be made in accordance with the Administrative Procedure Act, 5 U.S.C. § 706(A), (E), 1994. *Dickinson v. Zurko*, 527 U.S. 150, 165 (1999). Moreover, the Federal Circuit has held that findings of fact by the Board of Patent Appeals and Interferences must be supported by "substantial evidence" within the record. *In re Gartside*, 203 F.3d 1305, 1315 (Fed. Cir. 2000). In *In re Gartside*, the Federal Circuit stated that "the 'substantial evidence' standard asks whether a reasonable fact finder could have arrived at the agency's decision." *Id.* at 1312. Accordingly, it necessarily follows that an Examiner's position on Appeal must be supported by "substantial evidence" within the record in order to be upheld by the Board of Patent Appeals and Interferences.

The Action rejects claims 97-102, 109, 112-114, 123, and 137-143 under 35 U.S.C. § 112, first paragraph, as lacking a written description. According to the Examiner, the issue is that Appellants were only in possession of a partial sequence of a human opioid receptor at the time of filing, not the full-length receptor. The claims at issue pertain to processes for screening and processes for isolating substances for their ability to interact with an opioid receptor utilizing

recombinant opioid receptor polypeptides encoded by at least 30 contiguous bases from a specific polynucleotide sequence, SEQ ID NO:11. The nucleic acid sequence of SEQ ID NO:11, which encodes a partial genomic sequence of a human opioid receptor, is fully disclosed in the specification. At issue is the Examiner's assertion that Appellants must have disclosed the sequence of a full-length opioid receptor at the time of filing in order to meet the written description requirement. The Examiner also argues that in order for the claims to encompass various constructs such as chimeras, Appellants would either need to use "consisting of" language or recite that the nucleic acids of the claimed processes would only be able to "comprise" up to the full length of SEQ ID NO:11.

It is well-established that the inquiry of whether the written description requirement of 35 U.S.C. §112, first paragraph, must be determined on a case-by-case basis and is a question of fact. *In re Smith*, 458 F.2d 1389, 1395, 173 USPQ 679, 683 (CCPA 1972). The Federal Circuit has stated that the test for the written description requirement is "whether the application relied upon 'reasonably conveys to the artisan that the inventor had possession at the time of the later claimed subject matter.'" *In re Daniels*, 144 F.3d 1452, 1456, 46 USPQ2d 1788, 1790 (Fed. Cir. 1998). See also *Markman v. Westview Instruments, Inc.* 52 F.3d 967, 34 USPQ 2d 1321 (Fed. Cir. 1995) (en banc) ("Claims must be read in view of the specification, of which they are a part.").

In rejecting a claim under the written description requirement of 35 U.S.C. §112, first paragraph, the Examiner has the initial burden of presenting evidence or reasons why a person skilled in the art would not recognize in an applicant's disclosure a description of the invention defined in the claims. *In re Wertheim*, 541 F.2d 257, 263, 191 USPQ 90, 96 (CCPA 1976). In rejecting a claim under written description, the Examiner is required: (1) to set forth the claim

limitation not described; and (2) to provide reasons why a person skilled in the art would not have recognized the description of the limitation in view of the disclosure of the application as filed. *Interim Guidelines for the Examination of Patent Applications Under 35 USC 112, Paragraph 1*, Chisum on Patents, vol. 3, §7.04[1][c].

Appellants assert that the Examiner has failed to meet his initial burden of presenting evidence of why a person skilled in the art would not recognize in Appellants' disclosure a description of the invention defined in the claims. The Examiner has asserted that the claim limitation not described is a full-length opioid receptor, which is not recited in the claim. Appellants assert that their specification fully meets the written description requirement of 35 U.S.C. 112, first paragraph, and that they are not required to disclose a full-length opioid receptor in order to provide written description support for their claims.

Because it is conceded that the claims stand or fall together, Appellants will focus this discussion on claim 97. The preamble of claim 97 recites that the claim involves "a process of screening a substance for its ability to specifically bind to an opioid receptor." The process comprises the steps of: (1) expressing a recombinant opioid receptor polypeptide encoded for by a nucleic acid sequence comprising at least 30 contiguous bases of SEQ ID NO:11; (2) contacting the substance with the opioid receptor polypeptide; and (3) detecting the ability of the substance to specifically bind to the opioid receptor polypeptide.

The process, rather than requiring use of a full-length human opioid receptor, pertains to polynucleotides that are encoded by at least 30 contiguous bases of SEQ ID NO:11. The specification fully discloses SEQ ID NO:11. By formulating a rejection for failure to recite a full-length opioid receptor, the Examiner appears to be asserting that knowledge of a full-length opioid receptor sequence is required to practice the claimed invention. However, Appellants

assert that this is not the case. Appellants assert that their specification fully supports their claimed process, which explicitly recites SEQ ID NO:11 and does not recite a full-length opioid receptor. Disclosure of a full-length opioid receptor in the specification is not required for one of skill in the art to recognize that the inventors were in full possession of what they claim is the invention. The present invention is drawn to methods of screening a substance for its ability to specifically bind to an opioid receptor by contacting the substance with an opioid receptor polypeptide encoded by a nucleic acid sequence that has all or part of the contiguous bases of SEQ ID NO:11. Thus, Appellants assert their specification satisfies the written description requirement because it reasonably conveys to one of skill in the art that they had possession of the claimed subject matter. *In re Daniels*, 144 F.3d 1452, 1456, 46 USPQ2d 1788, 1790.

The Examiner asserts that in order for their claims to encompass genetic constructs that encompass the entire length of a human opioid receptor, that Appellants would either need to use "consisting of" language or recite that the nucleic acids of the claimed processes would only be able to "comprise" up to the full length of SEQ ID NO:11. Thus, the Examiner seems to be asserting that in the claim, use of term "comprising" as the transitional phrase, all possible embodiments of the invention that the claim reads upon must be disclosed in the specification. By the Examiner's reasoning, for example, any claim to a polypeptide comprising a particular newly discovered amino acid sequence wherein the amino acid sequence is fully disclosed in the specification could never be claimed since it is possible that the amino acid sequence might at some later point in time be attached to an object that is not presently disclosed in the specification. Let us assume, for example, that this unknown object is a spaceship. Since the specification not only fails to disclose a spaceship, but fails to disclose how to construct a spaceship, then by the Examiner's logic there is no written description support in the

specification for the polypeptide. This faulty logic used by the Examiner fails to take into account the Appellants' claim limitations. The claim limitations recite use of SEQ ID NO:11 in the claimed process, and not a full-length opioid receptor. There is no case or MPEP section that requires an applicant to describe that which is not expressly claimed or to describe something that may be covered by a claim merely by virtue of the transitional phrase "comprising."

In making the written description rejection, the Examiner also seems to be asserting that because the claim language includes "opioid receptor," that by necessity a full-length opioid receptor must be described in the specification. Such an interpretation of the written description is faulty and erroneous. In particular, the Examiner appears to be misapplying the requirements of written description set forth in *University of California vs. Eli Lilly and Co.*, which requires that claims to genetic material require recitation of more than a mere function. *University of California v. Eli Lilly and Co.*, 119 F.3d 1559, 43 USPQ2d 1398 (Fed. Cir. 1997) ("In claims to genetic material, however, a generic statement such as 'vertebrate insulin cDNA' or 'mammalian insulin cDNA,' without more, is not an adequate written description of the genus because it does not distinguish the claimed genus from others, except by function.") While it is true that in claims to genetic material, a generic statement without more is not an adequate written description of the genus, the present claims expressly recite a structure and do not rely upon functional limitations. In particular, the full nucleic acid sequence of SEQ ID NO:11 is disclosed in the specification. In addition, there is full support for all claim limitations in the specification. Thus, Appellants assert that they are fully in compliance with the written description requirements set forth in *Eli Lilly* because the claimed process of screening utilizing polypeptides encoded by at least 30 contiguous bases of SEQ ID NO:11 is fully supported by the specification, particularly since SEQ ID NO:11 is disclosed in the application as is the claimed

process, and furthermore, one of skill in the art would be able to practice the claimed invention based on the existing disclosure without additional disclosure of a full-length opioid receptor.

Appellants assert that they do not need to describe every embodiment on which the claim reads. According to the Federal Circuit, "[i]t is well-established that a patent applicant is entitled to claim his invention generically, when he describes it sufficiently to meet the requirements of section 112." *Amgen v. Chugai Pharmaceutical Co.*, 927 F.2d 1200, 18 USPQ2D 1016, 1027 (Fed. Cir. 1991) ; *See also Utter v. Hiraga*, 856 F.2d 993, 998, 6 USPQ2D 1709, 1714 (Fed. Cir. 1988) ("A specification may, within the meaning of 35 U.S.C. §112, paragraph 1, contain a written description of a broadly claimed invention without describing all species that claim encompasses.").

In requiring the disclosure of a full-length receptor, the Examiner seems to be asserting a requirement that every embodiment or a specific embodiment covered by a claimed invention be disclosed. Appellants know of no such requirement, and invite the Board or the Examiner to provide case law in support of this proposition. Nor does patent law require Appellants to limit their invention to embodiments reduced to practice, as suggested by the Examiner. (see Office Action of March 12, 2002)

The written description requirement has been extensively addressed by the Federal Circuit. In particular, the Federal Circuit has stated that "[t]he written description requirement does not require the applicant 'to describe exactly the subject matter claimed, [instead] the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed.'" *Union Oil Co. of California v. Atlantic Richfield Co.*, 208 F.3d 989, 997, 54 USPQ 2d 1227, 1232 (Fed. Cir. 2000). The Federal Circuit has also noted that "[if] a person of ordinary skill in the art would have understood the inventor to have been in possession

of the claimed invention at the time of filing, even if every nuance of the claims is not explicitly described in the specification, then the adequate written description requirement is met." *In re Alton*, 76 F.3d 1168, 1175, 37 USPQ2d 1578, 1584 (Fed. Cir. 1996).

Appellants assert that in accordance with the Federal Circuit's requirements pertaining to written description, one of ordinary skill in the art would have understood that the Appellants were in possession of a screening process involving "30 contiguous bases of SEQ ID No.: 11. In fact, the Examiner admits this much.

Regardless of what other protein components are added to those specifically provided, the full scope of the method as claimed was in possession of the inventors because the full scope of the invention is determined by the unique functional and structural characteristics of the compositions recited. That is, one may screen for or isolate substances that specifically bind to an opioid receptor, act as receptor agonists and the like, using the polynucleotides and polypeptides as claimed (as is fully described by the specification).

In the present case, it is irrelevant whether additional sequences are attached to the compositions claimed as part of the methods because such additional sequences have not been claimed *per se*. If such a rejection were proper, "comprising" claim language could not be used with any claim, because in the case of nearly any composition or method it is possible to attach thereto some additional component of potentially unlimited size, which is itself not described in the application. What is relevant is that the claimed subject matter has been adequately *described* in a manner that reasonably conveys to one skilled in the art how to make and use the invention.

Appellants respectfully submit that the proper issue is not whether Appellants had in their possession the full length receptor sequence that comprises SEQ ID NO: 11, but rather whether

they had possession of the invention including compositions comprising SEQ ID NO: 11, sub-sequences thereof, and methods of using such compositions to screen for substances that bind them. The Action agrees that Appellants had possession of SEQ ID NO: 11. Appellants have already cited sections of their specification which demonstrate that they were in possession of the disclosed sequences as well as other aspects of the claimed processes. "It is possible to create an almost endless array of chimeras using standard genetic manipulations and the knowledge that the inventors have derived concerning the ligand binding sites of the opioid receptors. All such chimeras, the polynucleotides encoding them, and methods of using them in assays are contemplated within the scope of the invention." Page 170 of the specification, lines 9-14.

The Examiner expresses states that the Appellants "intend to hunt for the remaining portion of the DNA while inhibiting those who may actually have identified the full-length receptor from claiming it." Final Office Action, page 3, lines 1-2. Appellants respectfully point out that they are claiming screening methods that utilize the novel and non-obvious characteristics of the nucleotides and polypeptides disclosed and the rejections must be relevant to the claimed invention. The present claims would not inhibit those who practice methods utilizing solely the balance of the receptor (or other polypeptide) exclusive of that claimed.

Appellants respectfully submit that the full scope of the present invention is described in the specification as filed. There is no "substantial evidence" to support the Examiner's position on Appeal, and as a result the Examiner's position should not be upheld. *In re Gartside*, 203 F.3d 1305, 1315 (Fed. Cir. 2000). Therefore, it is respectfully requested that the written description rejections be withdrawn.

X. CONCLUSION

It is respectfully submitted, in light of the above, that all pending claims are fully described and thus satisfy 35 U.S.C. §112, first paragraph. Therefore, Appellants request that the Board reverse the pending ground for rejection.

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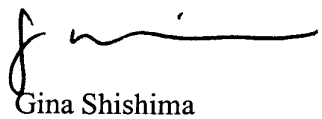
Respectfully submitted,



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